

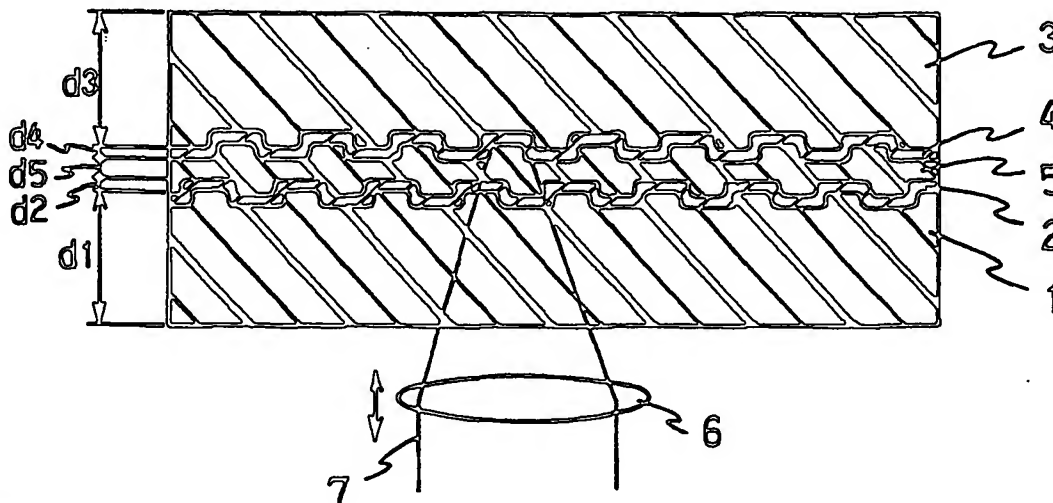
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## INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification <sup>6</sup> : G11B 7/00, 7/007, 7/09, 7/013, 7/24, 7/26		A3	(11) International Publication Number: WO 96/31875
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(30) Priority Data: 7/82248                      7 April 1995 (07.04.95)                      JP 7/214326                      23 August 1995 (23.08.95)                      JP		Published <i>With international search report. Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</i>	
(71) Applicant: MATSUSHITA ELECTRIC INDUSTRIAL CO., LTD. [JP/JP]; 1006-banchi, Oaza-kadoma, Kadoma-shi, Osaka 571 (JP).		(88) Date of publication of the international search report: 21 November 1996 (21.11.96)	
(72) Inventors: NISHIUCHI, Kenichi; 2-29-15-508, Okubo-cho, Moriguchi-shi, Osaka 570 (JP). NAGATA, Ken'ichi; 12-7, Kamino-cho, Nishinomiya-shi, Hyogo 663 (JP). AKAHIRA, Nobuo; 13-6, Otokoyama-kanaburi, Yawata- shi, Kyoto 614 (JP).			
(74) Agents: IKEUCHI, Hiroyuki et al.; Umeda Plaza Building, Room 401, 3-25, Nishitenma 4-chome, Kita-ku, Osaka-shi, Osaka 530 (JP).			

(54) Title: OPTICAL INFORMATION RECORDING MEDIUM, MANUFACTURING METHOD THEREFOR, MANUFACTURING APPARATUS THEREFOR, AND OPTICAL INFORMATION RECORDING AND REPRODUCING APPARATUS



## (57) Abstract

In an optical information recording medium having at least two information layers, guide grooves for tracking or sample pits or information pits corresponding to information signals are formed on a surface of a first substrate (1). A first information layer (2) formed by a thin film for reflecting a portion of a light beam (7) made incident on the first substrate (1) and permitting penetration of a portion of the light beam (7) is formed on a surface of the first substrate (1). Guide grooves for tracking or information pits corresponding to information signals are formed on a surface of a second substrate (3). A second information layer (4) having a reflectance higher than that of the first information layer (2) is formed on a surface of the second substrate (3). Between the first information layer (2) and the second information layer (4), there is formed a transparent separation layer (5) for positioning the first information layer (2) and the second information layer (4) to be spaced a predetermined distance apart from each other.

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# INTERNATIONAL SEARCH REPORT

International Application No  
PCT/JP 96/00973

<b>A. CLASSIFICATION OF SUBJECT MATTER</b> IPC 6 G11B7/00 G11B7/007 G11B7/09 G11B7/013 G11B7/24 G11B7/26		
According to International Patent Classification (IPC) or to both national classification and IPC		
<b>B. FIELDS SEARCHED</b> Minimum documentation searched (classification system followed by classification symbols) IPC 6 G11B		
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched		
Electronic data base consulted during the international search (name of data base and, where practical, search terms used)		
<b>C. DOCUMENTS CONSIDERED TO BE RELEVANT</b>		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US,A,4 450 553 (HOLSTER PETER L ET AL) 22 May 1984  see column 2, line 27 - line 33 see column 2, line 61 - line 65 see column 3, line 4 - line 11 see column 4, line 35 - line 44 see column 5; table 2 see column 5, line 28 - line 33 see column 7, line 49 - column 8, line 16 see column 8, line 8 - line 42 see column 10, line 31-63; figure 3	1,3-12, 17-19, 21,23-25
A	see column 8, line 17 - line 42	2,20,22, 26
A	see column 10, line 31 - line 63; figure 3	2,20,22, 26
A	see column 9, line 28 - line 35	2,20,22, 26
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<input checked="" type="checkbox"/> Further documents are listed in the continuation of box C.		
<input checked="" type="checkbox"/> Patent family members are listed in annex.		
<b>* Special categories of cited documents :</b> <div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p><b>"A"</b> document defining the general state of the art which is not considered to be of particular relevance</p> <p><b>"E"</b> earlier document but published on or after the international filing date</p> <p><b>"L"</b> document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)</p> <p><b>"O"</b> document referring to an oral disclosure, use, exhibition or other means</p> <p><b>"P"</b> document published prior to the international filing date but later than the priority date claimed</p> </div> <div style="width: 45%;"> <p><b>"T"</b> later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention</p> <p><b>"X"</b> document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone</p> <p><b>"Y"</b> document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.</p> <p><b>"Z"</b> document member of the same patent family</p> </div> </div>		
Date of the actual completion of the international search  <div style="text-align: center; font-weight: bold;">6 September 1996</div>		Date of mailing of the international search report  <div style="text-align: center; font-weight: bold;">- 9. 10. 96</div>
Name and mailing address of the ISA European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+ 31-70) 340-2040, Tx. 31 651 epo nl, Fax (+ 31-70) 340-3016		Authorized officer  <div style="text-align: center; font-weight: bold;">Poth, H</div>

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 International Application No  
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## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	PATENT ABSTRACTS OF JAPAN vol. 95, no. 003 & JP,A,07 073507 (TOSHIBA CORP), 17 March 1995, ---	1,3,4,6, 9,11,12, 17-19, 21,23-25
A	see abstract	2,26
Y	US,A,4 917 751 (OHTA KENJI ET AL) 17 April 1990 see column 1, line 35 - line 50 see column 2, line 38 - line 57; figure 2 ---	23,24
Y	US,A,4 990 208 (KANO NOBUHIKO) 5 February 1991 see column 1, line 32 - line 39; figure 31 see figures 5,6,9,10; examples 1,4 ---	23,24
Y	EP,A,0 443 797 (SONY CORP) 28 August 1991 see column 4, line 6 - line 30; figure 1 see column 7, line 51 - column 8, line 50; figures 9-11; examples 4-6 ---	23,24
A	see column 6, line 24 - line 28; figure 4; example 1 see column 7, line 51 - column 8, line 50; figures 9-11; examples 4-6 ---	27-31
A	US,A,5 318 653 (TOIDE YUKARI ET AL) 7 June 1994 see the whole document ---	23,24, 27-31
X	US,A,5 381 401 (BEST MARGARET E ET AL) 10 January 1995 see column 3, line 59 - column 8, line 38; figures 2,4,7 ---	32-35,37
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Y	US,A,5 023 439 (NODA KAZUO ET AL) 11 June 1991 see column 4, line 49 - column 5, line 10; figures 4,5 ---	38
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Int. l. Application No  
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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
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A	see column 3, line 56 - line 68; figures 1,2 -----	14-16

# INTERNATIONAL SEARCH REPORT

International application No.

PCT/JP 96/00973

## Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:  
because they relate to subject matter not required to be searched by this Authority, namely:
  
2. ☐ Claims Nos.:  
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
  
3. ☐ Claims Nos.:  
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

## Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see continuation sheet

1. ☒ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
  
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
  
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
  
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☒ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/SAJ/210

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|----------------------|--|
| 1. claims 1,2,19-22: | stable medium;   |
| 2. claims 23-26:     | manufacturing of a medium with an<br>adhesive resin layer;             |
| 3. claims 27-31:     | efficient production apparatus;  |
| 4. claims 32-38:     | recording/reproduction apparatus;                                      |
| 5. claims 3,4,6:     | appropriate reflectances and<br>absorptions of the information layers; |
| 6. claims 5,7,8:     | appropriate layer structures for the<br>information layers;            |
| 7. claims 9,12-18:   | information reliefs;   |
| 8. claims 10,11:     | reproducing-recording medium   |

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